NC UNIT SPECIFICATIONS

(for Export Standard)

Horizontal Machining Center

FANUC 31i-B

Machine Models : NHM 5000

NHM 6300

NHM 8000

NHP 6300

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DOOSAN INFRACORE CO., LTD.

1. STANDARD SPECIFICATIONS

1) AXES CONTROL

- Controlled axes	4 (X, Y, Z, B)
- Simultaneously controllable axes	4 axes
	Positioning(G00)/Linear interpolation(G01) : 3 axes
	Circular interpolation(G02, G03) : 2 axes
- Backlash compensation	
- Emergency stop / overtravel	
- Follow up	
- Least command increment :	0.001mm / 0.0001"
- Least input increment :	0.001mm / 0.0001"
- Machine lock	All axes / Z axis
- Mirror image	Reverse axis movement
	(Setting screen and M - function)
- Stored pitch error compensation	Pitch error offset compensation for each axis
- Stored stroke check 1	Overtravel controlled by software

2) INTERPOLATION & FEED FUNCTION

- Positioning	G00	
- Linear interpolation	G01	
- Circular interpolation	G02, G03	
- Dwell	G04	
- Exact stop check	G09, G61(mode)	
- Skip function	G31	
- Reference point return check	G27	
- Reference point return	G28	
- 2nd reference point return	G30	
- 3rd / 4th reference return (standard only for HM1000/1250, others as an option)		
- Feed per minute	mm / min	
- Rapid traverse override	F0 (fine feed), 25 / 50 / 100	%
- Feedrate override (10% increments)	0 - 200	%
- Jog override (10% increments)	0 - 200	%
- Override cancel	M48 / M49	
- Manual handle feed(1 unit)		
- Manual handle feedrate	0.1/0.01/0.001mm	
- Automatic acceleration/deceleration		
- Helical interpolation		
- AI Contour Control II	200 block preview	
- Machine condition selection function		
- Thread cutting, synchronous cutting		
- Program restart		
- Automatic corner deceleration (Specify AI Contour control II)		
- Feedrate clamp by circular acceleration		
- Linear ACC/DEC before interpolation (Specify AI Contour control II)		
- Linear ACC/DEC after interpolation		
- Control axis detach		
- Rapid traverse bell-shaped acceleration/deceleration		
- Smooth backlash compensation		

3) SPINDLE & M-CODE FUNCTION

- M-code function	M3	digits
- Spindle orientation		
- Spindle serial output		
- Spindle speed command	S5	digits
- Spindle speed override (10% increments)	10 - 150	%
- Spindle output switching		
- Retraction for rigid tapping		
- Rigid tapping	G84, G74	

4) TOOL FUNCTION

- Tool nose radius compensation	G40, G41, G42	
- Number of tool offsets	200	ea
- Tool length compensation	G43, G44, G49	
- Tool number command	T3	digits
- Tool life management		
- Tool offset memory C	H/D code, Geometry / Wear memory	
- Tool length measurement		

5) PROGRAMMING & EDITING FUNCTION

- Absolute / Incremental programming	G90 / G91	
- Auto. Coordinate system setting		
- Background editing		
- Canned cycle	G73, G74, G76, G80 - G89, G99	
- Circular interpolation by radius programming		
- Plane selection	G17, G18, G19	
- Custom macro B		
- Custom software size 1MB(31iA)/2MB(31iB)		
- Extended P-code Variables size 512kb		
- Addition of custom macro common variables	#100 - #199, #500 - #999	
- Decimal point input		
- Reader/puncher interface	RS - 232C	
- Inch / metric conversion	G20 / G21	
- Label skip		
- Local / Machine coordinate system	G52 / G53	
- Maximum commandable value	±99999.999mm (±9999.9999 inch)	
- Part program storage size 256kb	(640m)256	kb
- No. of Registered programs	500	ea
- Optional block skip 1		
- Optional stop	M01	
- Program file name	32 characters	
- Sequence number	N 8-digit	
- Program protect		
- Program stop / end	M00 / M02,M30	
- Programmable data input	Tool offset and work offset are entered by G10, G11	
- Sub program call	Up to 10 nesting	
- Tape code	ISO / EIA Automatic discrimination	
- Work coordinate system	G54 - G59	
- Additional work coordinate system(48 Pairs)	G54.1 P1 - 48 pairs	
- Coordinate system rotation	G68, G69	
- Extended part program editing		
- Optional chamfering corner R		
- Macro executor		

6) OTHERS FUNCTIONS (Operation, Setting & Display, etc)

- USB Interface(Only fanuc 31IB)
- Alarm display
- Alarm history display
- Actual cutting speed display
- Clock function
- Cycle start / Feed hold(Cycle stop)
- Display of PMC alarm message   Message display when PMC alarm occurred.
- Dry run
- Single block
- Ethernet function(Embeded)
- Graphic display   Tool path drawing
- Help function
- Loadmeter display
- DISPLAY/MDI unit   10.4" color LCD / Keyboard for data input, soft-keys
- Memory card interface
- Operation functions   Tape / Memory / MDI / Manual
- Operation history display
- DNC operation with memory card
- Program restart
- Run hour and part number display
- Search function   Sequence NO. / Program NO.
- Self - diagnostic function
- Servo setting screen
- External data input
- Multi language display

2. OPTIONAL SPECIFICATIONS

- 3-dimensional coordinate conversion
- 3-dimensional tool compensation
- Addition of tool pairs for tool life management   1024   pairs
- Additional controlled axes   max. 6 axes per path
- Additional work coordinate system   G54.1 P1 - 300 (300 pairs)
- AI Contour Control II   600 block preview
                                                            1000 block preview
- Automatic corner override   G62
- Chopping function   G81.1
- Cylindrical interpolation   G07.1
- Data server
- Dynamic graphic display   Machining profile drawing
   => When the EZ Guide i is used, the Dynamic graphic display cannot application
- Interpolation type pitch error compensation(HP/HC Machine)
- EZ Guide i (Doosan infracore Conversational Programming Solution)
- Tape format for FS15
- Increment system 1/10
- Figure copying   G72.1, G72.2
- Manual handle feed 2/3 unit
- Handle interruption
- High speed skip function
- Involute interpolation   G02.2, G03.2
- Coinical/spiral interpolation
- 3rd / 4th reference return
- Machining time stamp function
- No. of Registered programs   1000   ea
- Number of tool offsets   400 / 499 / 999 / 2000   ea
- Optional block skip addition   2~9 blocks
- Part program storage   512kb(1280m) kbyte
                                          1MB(2,560m)/2MB(5,120m)/8MB(20,480m) mbyte
- Playback function
- Polar coordinate command   G15 / G16
- Polar coordinate interpolation   G12.1 / G13.1
- Programmable mirror image   G50.1 / G51.1
- Scaling   G50, G51
- Single direction positioning   G60
- Stored stroke check 2 / 3
- Tool offset   G45 - G48
- Position switch
- Tool center point control   G43.4
- Rotary table dynamic fixture offset

*) Prior consultation is required.